AGENDA ITEM E-5

CITY OF LODI
COUNCIL COMMUNICATION

AGENDA TITLE: Authorize Additional Task Orders with Treadwell & Rollo for Technical Work Anticipated in **2008** for Alternatives Analysis and Implementation of the Cleanup and Abatement Order for the Central Plume and Additional Groundwater Modeling for PCE/TCE Contamination Remediation **($467,500)**

MEETING DATE: December **19,2007**

PREPARED BY: Public Works Director

RECOMMENDED ACTION: Authorize additional task orders as described below with Treadwell & Rollo regarding PCE/TCE contamination.

BACKGROUND INFORMATION: The City is continuing its movement from legal, investigative and monitoring activities on the PCE/TCE groundwater contamination to more remediation activities. Our technical consultants, Treadwell & Rollo (T&R), in consultation with City and Regional Water Quality Control Board staff, have developed a proposal for most of the technical work anticipated in 2008. In addition, T&R has requested additional compensation for development of the groundwater model that was described to the City Council at the November 20, 2007 Shirtsleeve Session.

The 2008 work consists of cost estimating/alternatives analysis and various elements anticipated in the revised cleanup and abatement order to be adopted by the Central Valley Regional Water Quality Control Board. They are described in more detail in Exhibit A. Although T&R has suggested a total budget of $282,000 for much of the work, excluding $95,000 for a Remedial Action Plan and $7,000 for indoor air sampling, staff is recommending that this work be included now, as doing **so** will help integrate the work and provide for faster and more efficient work flow. In addition, staff also recommends a contingency amount of approximately 10%, for a total of $422.000. Their request also includes an update of billing rates which have remained fixed since 2004. Staff supports this request, noting that all their standard rates would still be discounted 8%.

The request from T&R for additional funds for the groundwater modeling work is shown in Exhibit B and totals an additional $49,000 over the original estimate of $109,400. While staff is concerned about the additional costs, we do note that: a) the work was necessary, and **b)** that if the original estimate had included this level of effort, we would have paid for the work anyway. Staff does suggest that the amount for additional meetings be reduced by $3,500 since the work was largely within T&R's control as to the number of staff who attended.

FISCAL IMPACT: The work is essential to the PCE/TCE remediation program and could result in overall lower costs for the program. The total cost for the staff recommendation is $467,500 ($422,000 + $49,000 - $3,500).

FUNDING AVAILABLE: Central Plume Trust Fund (190201)

Kirk Evans, Budget Manager

Richard C. Prima, Jr.
Public Works Director

RCP/pmf
Attachments

APPROVED. Blair King, City Manager

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T—— I&Rollo

Exhibit A

27 November 2007
Project: 3923.12

City of Lodi Public Works Department
Attention: Mr. Richard C. Prima, Jr.
P.O. Box 3006
Lodi, CA 95241-1910

Subject: Cost Estimate for City-Wide Remediation and Cleanup and Abatement Order Response
City of Lodi, California

Dear Mr. Prima:

At your request, Treadwell & Rollo, Inc. has prepared the following description of the scope, schedule, and cost estimate for two scopes of work. The first scope is to develop an initial remediation cost estimate for the Central Plume and other chlorinated solvent plumes in the City (Cost Estimate for City-Wide Remediation). The objective of this work is to provide a preliminary range of likely costs to conduct remediation for the foreseeable future that can be used by the City for planning purposes.

The second scope of work is to begin implementation of the new Cleanup and Abatement Order (CAO) for the Central Plume in the City of Lodi (CAO Response). The objective of this work is to continue remediation of the Central Plume source area. These two scopes of work are described separately in the Approach and Scope of Work sections below.

APPROACH

Cost Estimate for City-Wide Remediation

We understand that the City needs to begin to plan for the remediation of the four contaminant plumes for which the City has or will have remediation responsibility. These plumes include the Central, Northern, Southern, and South Central/Western Plumes, each of which contains tetrachloroethene (PCE) and/or trichloroethene (TCE) and their break-down products. The City's role requires it to remediate the soil and groundwater contamination associated with the Central Plume and the groundwater contamination associated with the remaining plumes. The Busy Bee Plume is not included in this list as it is being remediated by others.

Of the four plumes, only the Central Plume has been fully defined in extent and is subject to remediation technology testing. The remaining three plumes have a range of uncertainty associated with them, from incomplete site and off-site characterization to final legal agreements by responsible parties. Aware of these and other outstanding issues, the City has requested that we develop an initial cost estimate of City-wide remediation activities for long-range groundwater remediation planning purposes.

Our approach in preparing the City-wide cost estimate is to develop reasonable remedial scenarios based on, for certain portions of the plumes, necessarily broad assumptions that use the currently available information. Because the assumptions will be broad for the Northern, Southern, and South Central/Western Plumes, the cost estimate will cover a range of possible costs and must be considered preliminary. At the current time, we are assuming that most of the City's remediation efforts will focus on the extraction and treatment of contaminated groundwater, reuse of the water wherever possible, and City-wide long-term monitoring of the remediation efforts. Remediation estimates for soil and

groundwater contamination in the Central Plume will be based on the extensive work done for that plume and will have a higher level of confidence.

We will evaluate the reasonableness of our groundwater extraction assumptions and scenarios using the City of Lodi groundwater flow model recently developed for the Central Plume, with expansion of the model as needed. We expect that additional work, including field work, may be needed for selected plumes to adequately assess remediation assumptions and costs; this additional work is not included in the scope of work presented below.

CAO Response

CAO Response tasks include revising the draft CAO to address questions by the RWQCB, preparation of an interim remedial measures (IRM) workplan, preparation of a Remedial Action Plan (RAP), and other activities. These tasks extend from the present through 2009. The objective of the work is to implement remediation of the source area of the Central Plume, including soil remediation and groundwater extraction and containment.

We anticipate that the RWQCB will approve the draft CAO which we submitted on 25 October 2007. As provided in the CAO, the Central Plume IRM will be focused on removal of contaminant mass from source area vadose zone soils and near-source area control of the most highly contaminated groundwater.

The CAO Response tasks will not include the following portions of the draft CAO:

- Remedial Design;
- Implementation of Final RAP;
- Operation and Maintenance of the RAP; and
- Five Year Review.

SCOPE OF WORK

Cost Estimate for City-Wide Remediation

The cost estimate work will include the following:

- Developing remedial scenarios for the Central, Northern, Southern, and South Central/Western Plumes that will likely be approved by the RWQCB;
- Compiling capital and operational costs of the specific baseline technologies used in the planning scenarios;
- Preparing spreadsheets to itemize and calculate the estimated costs for the scenarios;
- Checking the technical feasibility of the scenarios using the City of Lodi groundwater flow and contaminant transport model;

- Revising the scenarios and costs according to the model results; and

- Documenting the results of the cost estimate with spreadsheets and a list of assumptions, a graph showing the costs estimated to be incurred over time, a map showing well locations and groundwater capture areas for each remedial scenario, and a brief letter report.

Based on currently available data, we will make the following assumptions for the cost estimate:

- The Central Plume IRM will begin in 2008;

- City-wide remediation will begin no sooner than 2010;

- Reuse of treated groundwater will be a primary focus for the City and will be allowable by the California regulatory agencies; and

- Remediation costs will continue throughout a 30-year timeframe.

The primary remedial scenarios will likely include the following:

- Soil vapor extraction (SVE) to remove contaminant mass from vadose zone soils at the Central Plume only;

- Groundwater extraction and treatment using granular activated carbon (GAC), HiPOX treatment or similar technology (as determined during the assessment of technologies), assuming that groundwater remediation goals are the current maximum contaminant levels (MCLs) for drinking water;

- Reuse of treated groundwater to reduce potential waste of water at all plumes, with possible reinjection of treated groundwater where warranted;

- Site-specific additional investigations, groundwater monitoring, and remedial technologies to remove mass from highly contaminated groundwater areas; and

- Adjustments to the Lodi water supply well pumping, well-head treatment or other remediation technology, according to the simulated effects of the PCE/TCE contamination on the City water supply wells.

CAO Response

The scope of work for the CAO Response will include revising the draft to address RWQCB questions and comments and implementing specific IRM tasks. The RWQCB will likely have questions or comments regarding the draft CAO, and we anticipate that we will need to make limited revisions to the CAO for final approval. Specific IRM tasks in the CAO Response scope include the following:

- Central Plume IRM Work Plan. Treadwell & Rollo will prepare an IRM work plan to perform soil vapor extraction (SVE) and groundwater extraction and containment in the source area vicinity of

the Central Plume. We expect that the groundwater extraction and containment will likely consist of extraction wells at Oak Street and Chestnut Street only. The Central Plume IRM Work Plan will include an implementation schedule. We anticipate that contaminated groundwater down-gradient of the Central Plume source area will be addressed in a City-wide groundwater remediation program that will be outside of this CAO.

Treadwell & Rollo will conduct groundwater flow modeling to evaluate the location, depths, and pumping rates of groundwater extraction wells. The model results will help to evaluate the most reasonable remediation scenarios and the potential influence of groundwater extraction on other nearby groundwater contamination plumes.

In addition, Treadwell & Rollo will develop preliminary engineering designs for the SVE and groundwater extraction systems. We will coordinate with the City of Lodi staff regarding the disposition of the treated groundwater, property acquisition, and permitting. We have not included scopes for IRM system installation and startup nor for IRM system operation and maintenance. These scopes will be needed to comply with the CAO and are dependent on the engineering design results.

- Confirmation Indoor Air Sampling. Following startup and operation of the Central Plume IRM, confirmation indoor air samples will be collected at locations where PCE or TCE concentrations in indoor air previously exceeded screening criteria. Sampling locations will include: 1) St. Anne's School at 200 South Pleasant Avenue, 2) 215 West Oak Street – Cindi's Bookeeping, 3) 215 West Oak Street – Central Valley Internet, 4) United Methodist Church at 200 West Oak Street, 5) 11 South Church Street, and 6) the residence at 18 South Pleasant Avenue. We expect to collect one sample per location and to collect only one sample each for duplicate, equipment, and trip blank quality control analyses. This work is required for compliance with the CAO.

- Preparation of Public Participation Plan (Community Relations). Treadwell & Rollo will develop a Public Participation Plan (PPP) that describes how the public and adjoining community will be kept informed of activities conducted at the Central Plume source area and how the City and Treadwell & Rollo will respond to inquiries from concerned citizens. We expect that the PPP will follow the standards of typical community relations plans. This work is required for compliance with the CAO.

- Support Activities for Compliance with the California Environmental Quality Act (CEQA). Treadwell & Rollo will provide information to facilitate the RWQCB's compliance with CEQA. We anticipate that this work will require no more than a total of one week's professional time. This work is required for compliance with the CAO.

- Remedial Action Plan. Treadwell & Rollo will prepare and submit a draft RAP that includes an evaluation of remedial alternatives for the Central Plume source area and groundwater. Treadwell & Rollo will use the previous investigations, pilot testing, and IRM results to assess Site conditions and to evaluate alternatives and select a remedy appropriate for the Central Plume and compatible with likely future remedial activities. As a result, our analysis of the remedial scenarios will include groundwater flow and contaminant transport modeling to assess interaction between the plumes and the City of Lodi water supply wells for the Northern, South Central/Western, and Southern Plumes. This work is required for compliance with the CAO.

- Implementation of PPP. Treadwell & Rollo will implement a public review process consistent with the PPP. This will include the preparation of a fact sheet for the IRM Work Plan and a fact sheet and public meeting for the RAP. Within 10 days after closure of the public comment period, Treadwell & Rollo will submit a written Responsiveness Summary of all written and oral comments presented and received during the RAP public comment period. Within fifteen (15) days following approval of the Responsiveness Summary, Treadwell & Rollo will modify the RAP in accordance with the Responsiveness Summary and submit a final RAP. This work is required for compliance with the CAO.

- Groundwater Monitoring. The City is currently conducting groundwater monitoring for the Central Plume. The RWQCB has approved a change from quarterly to semi-annual sampling and reporting as well as submittals to Geotracker as needed and a hard copy and electronic Annual Report. For 2008, the Central Plume groundwater monitoring is expected to include sampling in March, September, and December. The Central Plume IRM Work Plan will include proposed changes to the current monitoring program. This work is required for compliance with the CAO.

- Semi-annual Summary Reports. Under the provisions of the CAO, Treadwell & Rollo will prepare a Semi-annual Summary Report of its activities and submit the report to Geotracker. The report will be received by the fifteenth (15th) day of June and December and will describe:

  - Specific actions taken by or on behalf of the City of Lodi during the previous six months;

  - Actions expected to be undertaken during the next six months;

  - Any requirements under the CAO that were not completed;

  - Any problems or anticipated problems in complying with the CAO; and

  - All results of sample analyses, tests, and other data generated under the CAO during the previous calendar quarter, and any significant findings from these data.

SCHEDULE

The completion dates for the Cost Estimate for City-Wide Remediation and the CAO Response are presented below. The CAO due dates are specified in the draft CAO and determine the completion dates for the CAO tasks. Additional completion dates are needed to implement the work and achieve the CAO requirements. The completion dates are listed below assuming that the CAO is approved on or before 7 December 2007.

Task	***Completion Date***
Cost Estimate for City-Wide Remediation	
List of assumptions to City	15 December
Cost estimate to City	31 December 2008
CAO Response	
Draft CAO Revisions	January 2008
Central Plume IRM Work Plan Submittal	1 March 2008
Confirmation Indoor Air Sampling	After startup and operation of the Central Plume IRM
Preparation of PPP	January 2008
CEQA Support	(as needed)
RAP	2010
Implementation of PPP	
- Fact sheet for the IRM Work Plan	January 2008
- RAP Fact sheet and public meeting	2010
- Responsiveness Summary	10 days after closure of the public comment period
- RAP finalization and submittal	15 days following Responsiveness Summary approval
Groundwater Monitoring	March, September, and December 2008 (one year only included)
Semi-annual Summary Reports	15th day of December 2007- 2009 and June 2008-2009

This schedule is dependent on the final CAO action items and schedule, the IRM progress, and other factors. Although not included in this authorization request, the work for IRM system installation and startup and operation and maintenance will need to be scheduled. The IRM system installation and startup will likely require a lead time of three to six months prior to reaching full operation.

ESTIMATED FEES

Our estimated fees are as follows:

Task	*Estimated Fees*
Cost Estimate for City-Wide Remediation	*$73,000*
CAO Response	
CAO Revisions for RWQCB	$8,000
Central Plume IRM Work Plan	$70,000 (including modeling and engineering)
Confirmation Indoor Air Sampling	$ *7,000*
Preparation of PPP	$ *6,000*
CEQA Support	$ *5,000*
RAP	$95,000 (including modeling)
Implementation of PPP	$10,000
Groundwater Monitoring	$100,000/ year
Semi-annual Summary Reports	$10,000/ year

We will perform the work on a time-and-expense basis in accordance with terms in our Technical Services Task Order Agreement signed 19 May 2004 with the City of Lodi. We request authorization from the City of Lodi to commence work on the Cost Estimate for City-Wide Remediation, CAO Revisions, Central Plume IRM Work Plan, Preparation of PPP, CEQA Support, Implementation of PPP, Groundwater Monitoring (for 2008), and Semi-annual Summary Reports (for 2008). The total authorization request is $282,000. The authorizations for the RAP and Confirmation Indoor Air Monitoring tasks can be deferred until a more definitive schedule has been set.

Request for Billing Rate Changes

Certain Treadwell & Rollo staff, including Philip Smith, Dorinda Shipman, and Patrick Hubbard, has not had their billing rates adjusted since the original contract was executed on 22 April 2004. In this contract, all unnamed Treadwell & Rollo professionals are to be billed at an 8% reduction from their standard rates. The rates of named professionals are fixed, although we believe that there was an understanding that rate increases for these individuals would be granted at a future date. As this has not yet been done, we are requesting that ALL Treadwell & Rollo individual billing rates be subject to the previously-agreed 8% reduction from standard rates, beginning 1 January 2008.

We appreciate the opportunity to assist the City of Lodi. Please contact us if you need any further information.

Sincerely,
TREADWELL & ROLLO, INC.

Philip G. Smith, CPGS, REA II
Vice President

Patrick B. Hubbard, PG
Senior Associate Geologist

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Treadwell&Rollo

Exhibit B

DEC 03

27 November 2007
Project: 3923.21

City of Lodi Public Works Department
Attention: Mr. Richard C. Prima, Jr.
P.O. Box 3006
Lodi, CA 95241-1910

Subject: Detailed Description of Additional Tasks for Central Plume Groundwater Flow Model
City of Lodi, California

Dear Mr. Prima:

Per your request, the following is a detailed description and documentation of additional tasks and related costs that were required to complete and present the groundwater flow and transport numerical model for the City of Lodi. The objective of this work has been to develop a groundwater flow and transport computer model to aid in the design of an appropriate remedial action plan for the Central Plume groundwater contamination. The model may also be applied as a tool for remedial planning of other groundwater contamination plumes (the South Central/Western, Northern, and Southern Plumes) and for managing groundwater resources.

This letter includes descriptions of task work that exceeded anticipated estimated budgets and tasks that were not part of our proposal dated 1 March 2007. These additional tasks were essential to successfully complete and present the model to the California Central Valley Regional Water Quality Control Board (RWQCB) and to the 20 November 2007 City Council shirtsleeve session. As we discussed in our meetings with you and, most recently, with the RWQCB on 25 October 2007, the RWQCB agrees that the model will be a critical tool in the selection of appropriate remedial alternatives and will likely help in reducing both short- and long-term costs to the City.

BACKGROUND

The Central Plume is the largest chlorinated solvent plume of the five such plumes in the City. As the Central Plume legal issues have been settled with the various responsible parties, this plume was the focus of the groundwater flow model, The initial scope of work was based on our estimate of available data, subsurface conditions, and the data evaluation needs of the City and the RWQCB. During our work, we found that groundwater flow in the Central Plume area is significantly influenced by groundwater extraction outside of the City limits, which necessitated compiling considerably more data than originally anticipated. To assist in responding to the RWQCB request for a new Central Plume Cleanup and Abatement Order (CAO), we also performed numerous simulations that were not anticipated during the initial budgeting. As a result, Treadwell and Rollo performed additional tasks and incurred additional costs, which are presented below and summarized in the accompanying table.

ADDITIONAL TASKS

The following describes the basis and need for the additional costs using our original task identification structure.

Task 1000 – Data Compilation and Evaluation (Additional Budget Request = $14,000)

Our original scope for Task 1000 assumed that the model would be developed with data that was predominantly within our files. However, after the data were compiled and the model was constructed, the flow portion of the model could not be calibrated. It became clear that additional ground water production data beyond the City limits would need to be compiled and evaluated in order to adequately calibrate the model. Additional data gathering and evaluation consisted of the following:

- Search of DWR records – Three separate file requests were made to the California Department of Water Resources (DWR) for well records outside of the City limits.

- Additional review of more than 900 DWR reports – An extensive review of more than 900 irrigation, domestic, and monitoring well DWR reports was performed. Location, lithology, production, and screen intervals were reviewed and summarized according to township and range section. DWR reports related to monitoring wells or well destruction were discarded from the database. DWR reports dated back to the turn of the century and were of variable quality and condition.

- Additional review of water production records for domestic and agricultural irrigation wells – Treadwell & Rollo evaluated water production data associated with the different screen depths where available. Additional data was obtained from the City.

Task 2000 – Model Development and Construction (Additional Budget Request = $2,500)

Based on the results of the additional data compilation, the model was amended and expanded. These additional efforts consisted of the following:

- Model domain expansion – The original extent of the modeled area (domain) had to be extended to include the large number of influential wells which were mainly outside of the City limits, with a particularly large expansion to the southeast of the City.

- Additional well integration into model – In order to model the effect of the more than 700 wells outside of the City, wells were grouped by section. Then production of each individual well was incorporated into the compiled well location according to screen depth. This method integrated the more than 700 wells into 190 well areas in the model. These simplified well areas were then located in the model based on their proximity to the actual wells. This effort was required to make the model as efficient as possible.

Task 3000 – Model Calibration (Additional Budget Request = $6,500)

Recalibration of the model to match additional well production – After the integration of the well areas, the model was re-calibrated to match the groundwater elevation contours within the City limits as well as the groundwater flow directions in the shallow, intermediate, and deep layers. Without accurate

calibration, it would have been impossible to develop accurate remediation alternative scenarios. A total of 60 calibration runs were required.

Task 4000 – Model Verification (Additional Budget Request = $0)

No additional scope was required for Task 4.

Task 5000 – Sensitivity Analysis (Additional Budget Request = $3,000)

Because of the effect of the additional wells, additional unbudgeted sensitivity simulations of groundwater flow and contaminant transport were performed. These sensitivity simulations were needed to assess the model's sensitivity to multiple extraction well locations, seasonal flow rates, and variations in source area conditions reflecting the much larger model domain.

Task 6000 – Predictive Simulations (Additional Budget Request = $3,000)

Because the RWQCB requested that the City begin to prepare a new CAO for the Central Plume, additional unanticipated predictive simulations of groundwater flow and contaminant transport were performed. These additional predictive simulations and related animations were used to evaluate possible CAO remedial alternatives in the Central Plume and impacts on hypothetical Central Plume pumping on the South Central/Western Plume. Initial simulations involving the potential impact of Central Plume pumping on the Northern Plume were also performed but have not been fully calibrated. These simulations and related animations were key components to presenting the model's utility to the RWQCB as well as focusing on possible Central Plume remedial actions.

Task 7000 – Technical Memorandum (Additional Budget Request = $0)

The technical memorandum has not been written at this time. The original budget for this task was $15,600. We are ready to produce this documentation since the model has been adequately calibrated and tested.

Task 8000 – Meetings (Additional Budget Request = $20,000)

Three meetings were scoped in the original budget – an initial meeting, a presentation of the completed model to City staff, and a presentation of the completed model to the RWQCB. Our budget assumed that no more than two Treadwell & Rollo personnel would attend any meeting. Also, one additional out of scope meeting was held (the shirtsleeve session to the City Council). In order to prepare for these four meetings, additional unanticipated work was necessary. Costs associated with this additional work were based on the following:

- The scope of the initial project meeting (held on 15 June 2007) was expanded to report on model development progress. During this meeting we presented the flow model results to date and explained the need to expand the model development outside of City limits. Three Treadwell & Rollo personnel attended.

- The scope of the completed model presentation to City staff (on 25 September 2007) was expanded to include model simulations outside of the Central Plume (i.e. the South Central/Western plume). In response to the RWQCB request for a new Central Plume CAO, the presentation included information

regarding assumptions, construction, calibration, sensitivity, remedial scenarios for the Central and South Central/Western Plumes and two types of animation depicting the plume migration. In support of a cost-effective approach for the new CAO, the results of the model indicated the viability of focused, rather than extensive, groundwater extraction as the likely preferred remedial approach for the Central Plume. Four Treadwell & Rollo personnel attended.

- The scope of the completed model presentation to the RWQCB (on 25 October 2007) was expanded to include 3-D animations, preliminary remedial options for the Central Plume, and preliminary remedial options outside of the Central Plume (i.e. the South Central/Western Plume). Three out-of-scope simulations were provided in total. The favorable response of the RWQCB staff demonstrated the usefulness of the model as a key predictive tool to develop cost-effective remedial measures. Three Treadwell & Rollo personnel attended.

- As requested by the City but not included in our original scope, we prepared for a fourth meeting (the shirtsleeve session) which was held on 20 November 2007. The preparation for this meeting required time for the project team to rework and compile the previous presentations for the diverse audience in attendance at the shirtsleeve session, including enhancements to the 3-D animations.

ADDITIONAL FEES

The original proposal was based on an estimated budget that did not include the significant extra time needed to compile, assess, and input data for the model construction and calibration, the significant additional time required to make the additional calibration runs, and the running and animation development of multiple remediation scenarios that had not been anticipated. All of this work was necessary to complete the model development and calibration. We request authorization from the City to update the modeling budget for the fees associated with these additional tasks. The following table provides the original budget, amount of the original budget spent, and additional incurred costs by task.

Task	Description	Original Budget	Amount of Original Budget Expended	Additional Scope/Budget Requested	Task Total
1	Data Compilation & Evaluation	$5,000	$5,000	$14,000	**$19,000**
2	Model Development & Construction	$24,000	$24,000	$2,500	**$26,500**
3	Model Calibration	$12,400	$12,400	$6,500	**$18,900**
4	Model Verification	$5,700	$5,700	$0	**$5,700**
5	Sensitivity Analysis	$7,200	$7,200	$3,000	**$10,200**
6	Predictive Simulations	$30,000	$30,000	$3,000	**$33,000**
7	Technical Memorandum	$15,600	$0	$0	**$15,600**
8	Meetings	$9,500	$9,500	$20,000	
	Total	**$109,400**	*$93,800*	$49,000	**$158,400**

At this time, we request a budget increase to $158,400 based on the above table. Please note that we are not asking for 100% reimbursement for our total costs incurred, and have not charged approximately $12,000 that we will write-off. We also note that by developing a flexible, verifiable groundwater model, the City will likely realize significant cost savings that would not have been possible otherwise.

We appreciate the opportunity to assist the City of Lodi. Please contact us if you need any further information or have any questions.

Sincerely,
TREADWELL & ROLLO, INC.

Philip G. Smith, CPGS, REA II
Vice President

Patrick B. Hubbard, PG
Senior Associate Hydrogeologist

39232101.PBH

AUTHORIZATION OF BUDGET INCREASE

Client: **City of Lodi**

By: _____ Date: _____
(Signature)

Name: _____
(Print Name)

Title: _____